

An Introduction of MCHP Unit for Residential Use

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Honda MCHP1.0 Gas Engine Micro CHP unit



Fig. 2 External view of Honda Micro CHP

Development Concept

1: Utilizing the primary energy with minimal waste.

- High energy utilization efficiency
- Reduce discharge of CO² and NO_x

2: Installation to general residence.

- Compact package
- Low operation noise
- High quality power supply
- Connection with hot water supply and heating.....

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system

Energy Utilization Ratio (conventional style)

Energy service system by thermal power station.

(Average of 9 Japan electricity service companies in 1998)

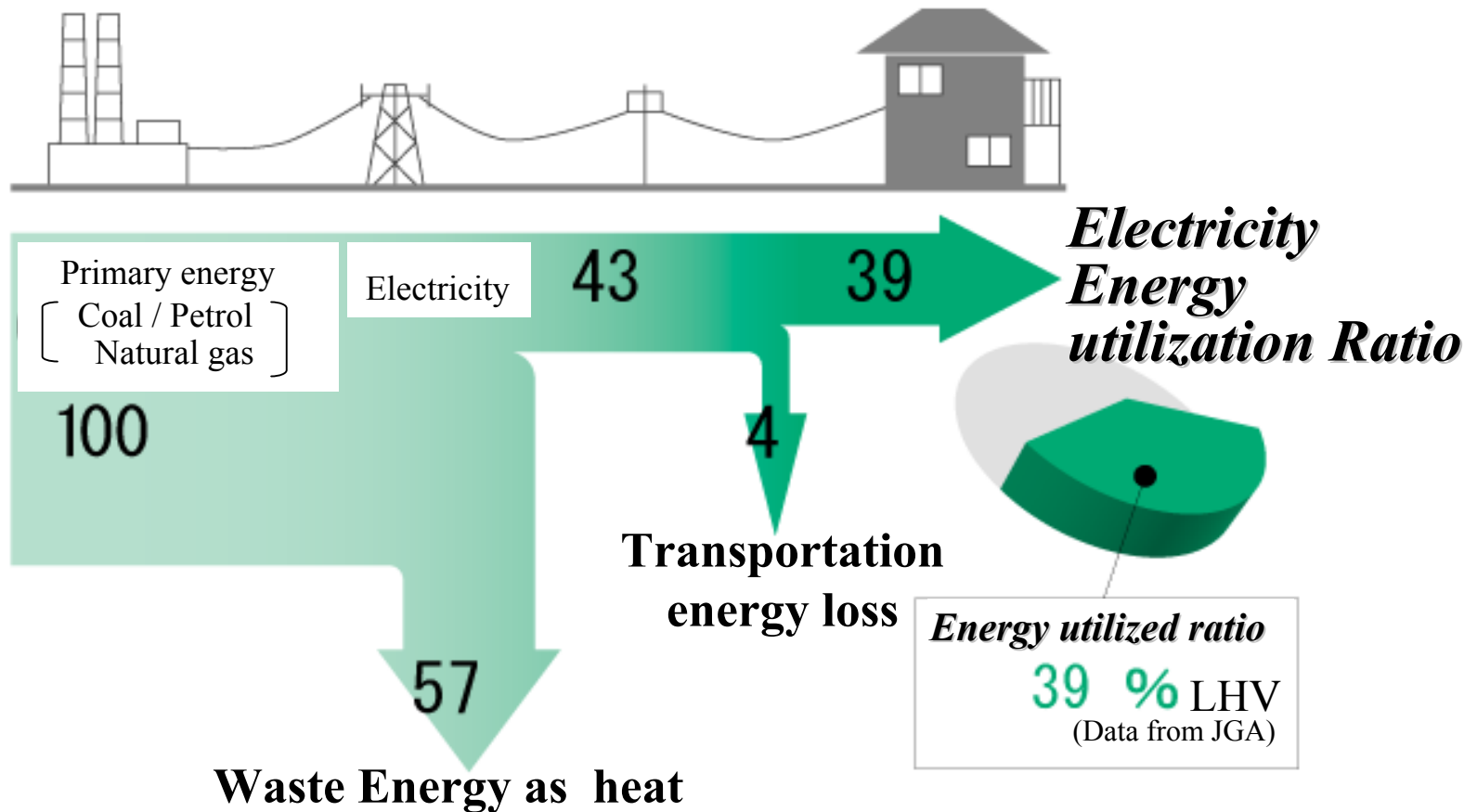


Fig. 4 Comparison of total energy efficiency

Energy Utilized Ratio (MCHP model)

Energy supply by using MCHP

(by natural gas)

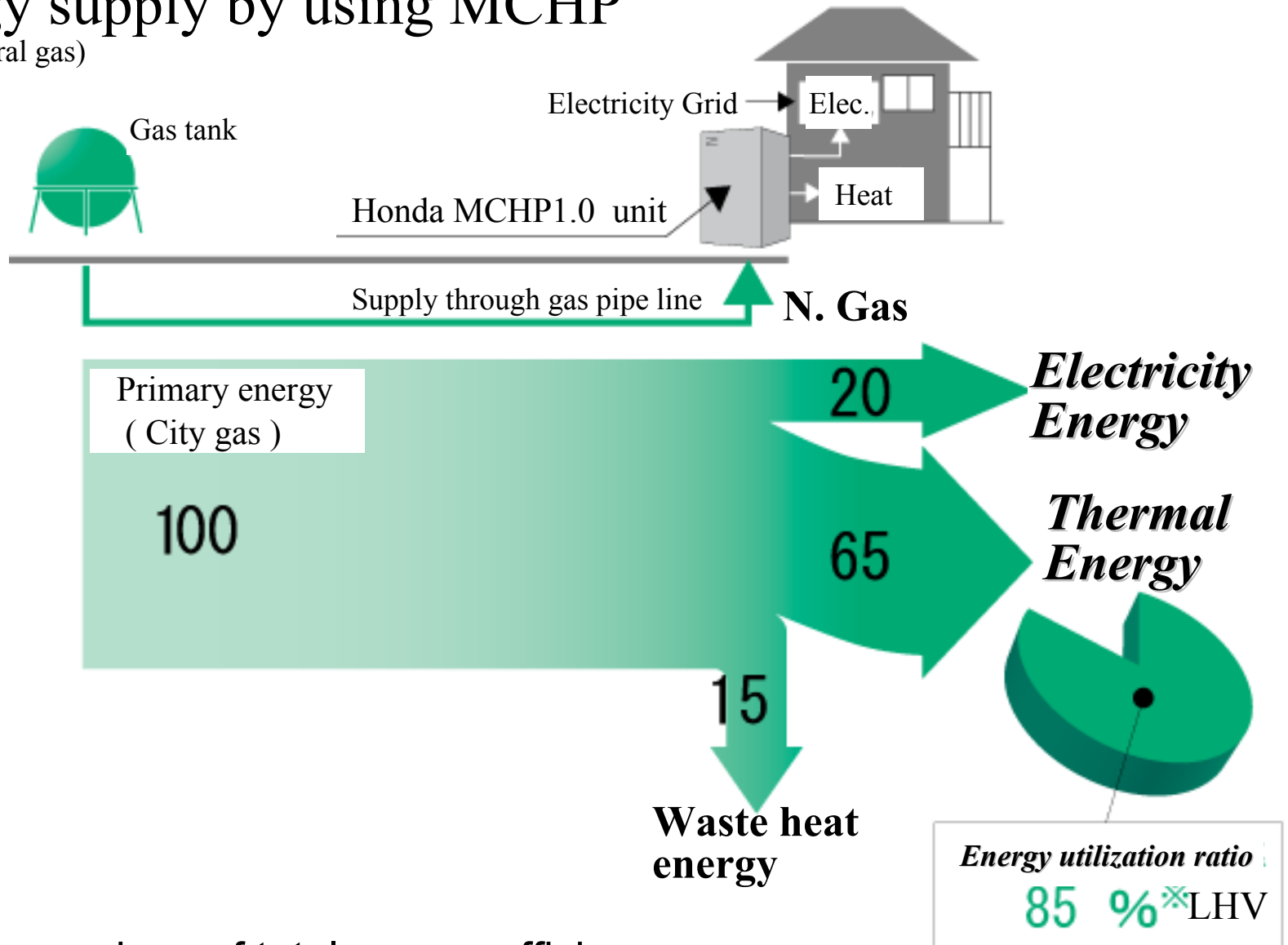


Fig. 4 Comparison of total energy efficiency

..Calculation result with MCHP unit only

Honda MCHP1.0 Electricity and heat

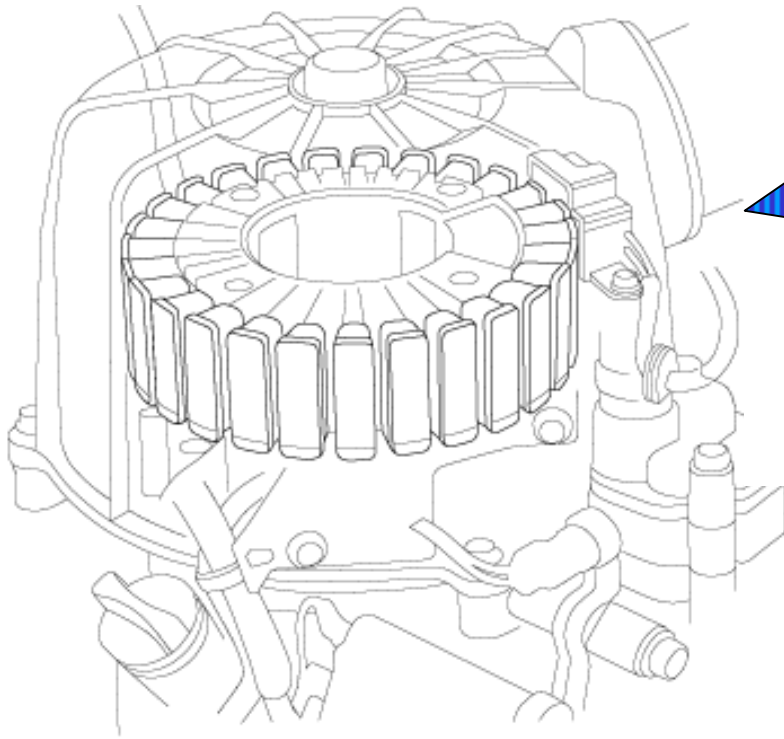


Fig. 5 Generator (27 poles)

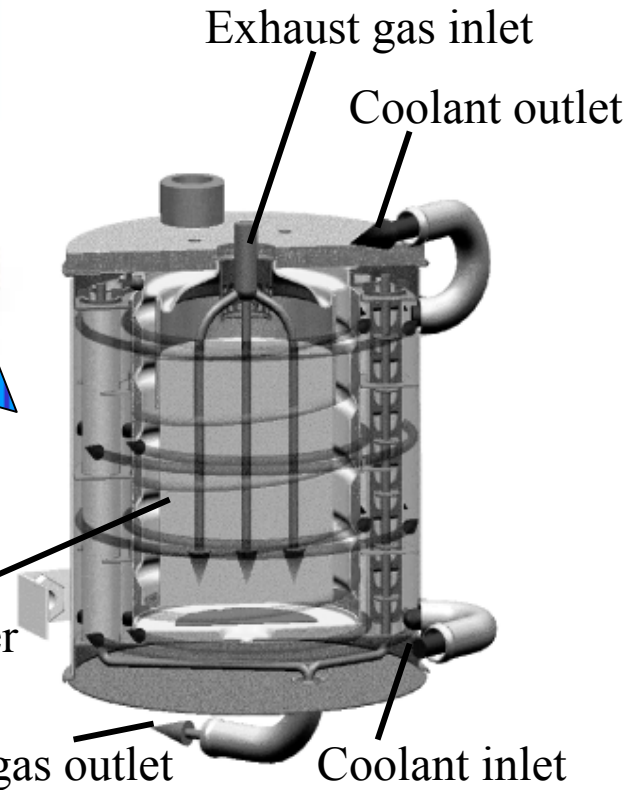
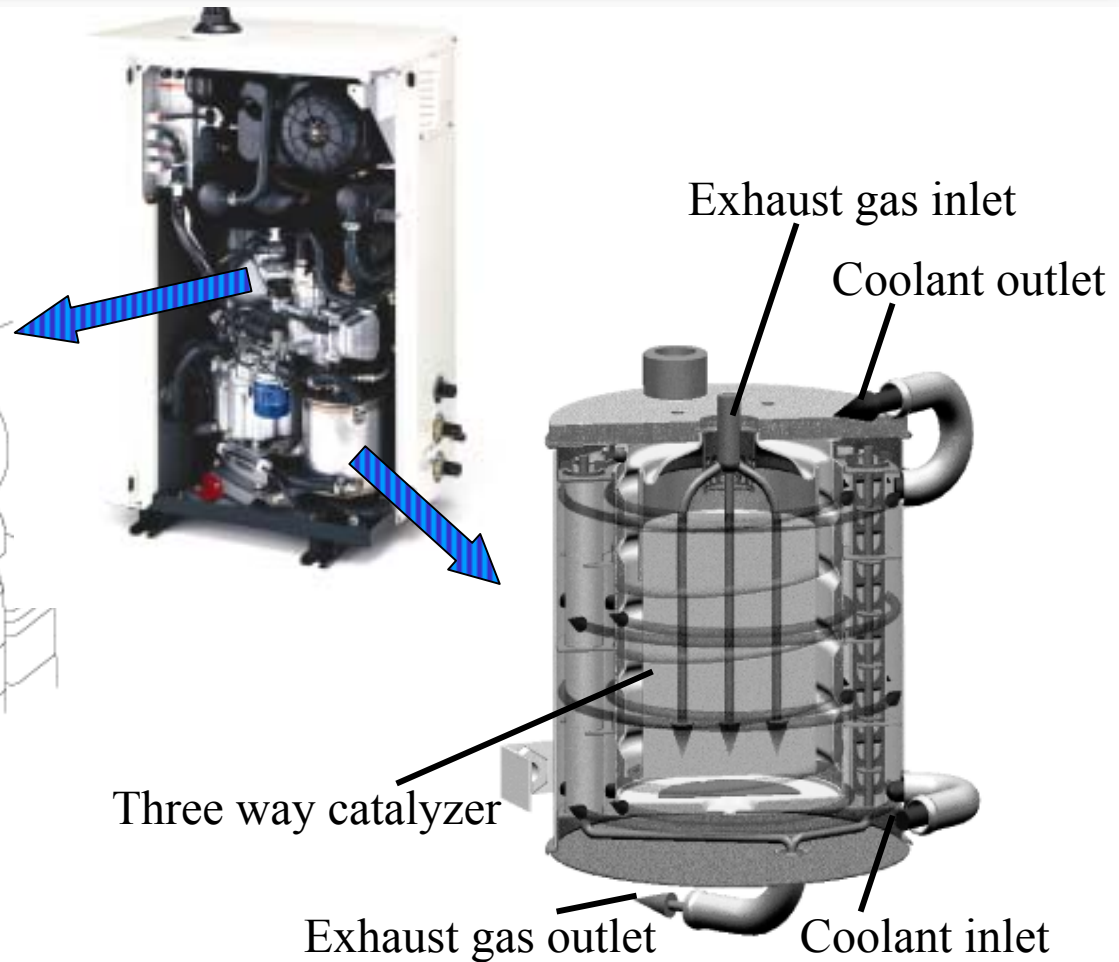


Fig. 6 Heat Exchanger with built-in catalyzer

Honda.MCHP1.0 Specifications



Fuel		Natural Gas (Japan 13A)
Output	Electricity	1Φ 200V/100V 50/60Hz 1 kW
	Heat	3.25 kW
Power supply		Grid interconnection
Heat recovery		Max. 80. Hot coolant
Efficiencies (LHV)	Electricity	20%
	Heat	65%
Dimension (L x W x H)		640x380x940 mm
Operation Weight		82
Operation Noise		44 ..B.A./...
Emission (NOx)		Max. 60ppm
Engine	Type	Liquid cooled 4-stroke OHC vertical single cylinder
	Displacement	163 cm ³
Starting system		Starter Generator

Table 1 Specifications

Internal Structure of Honda MCHP1.0

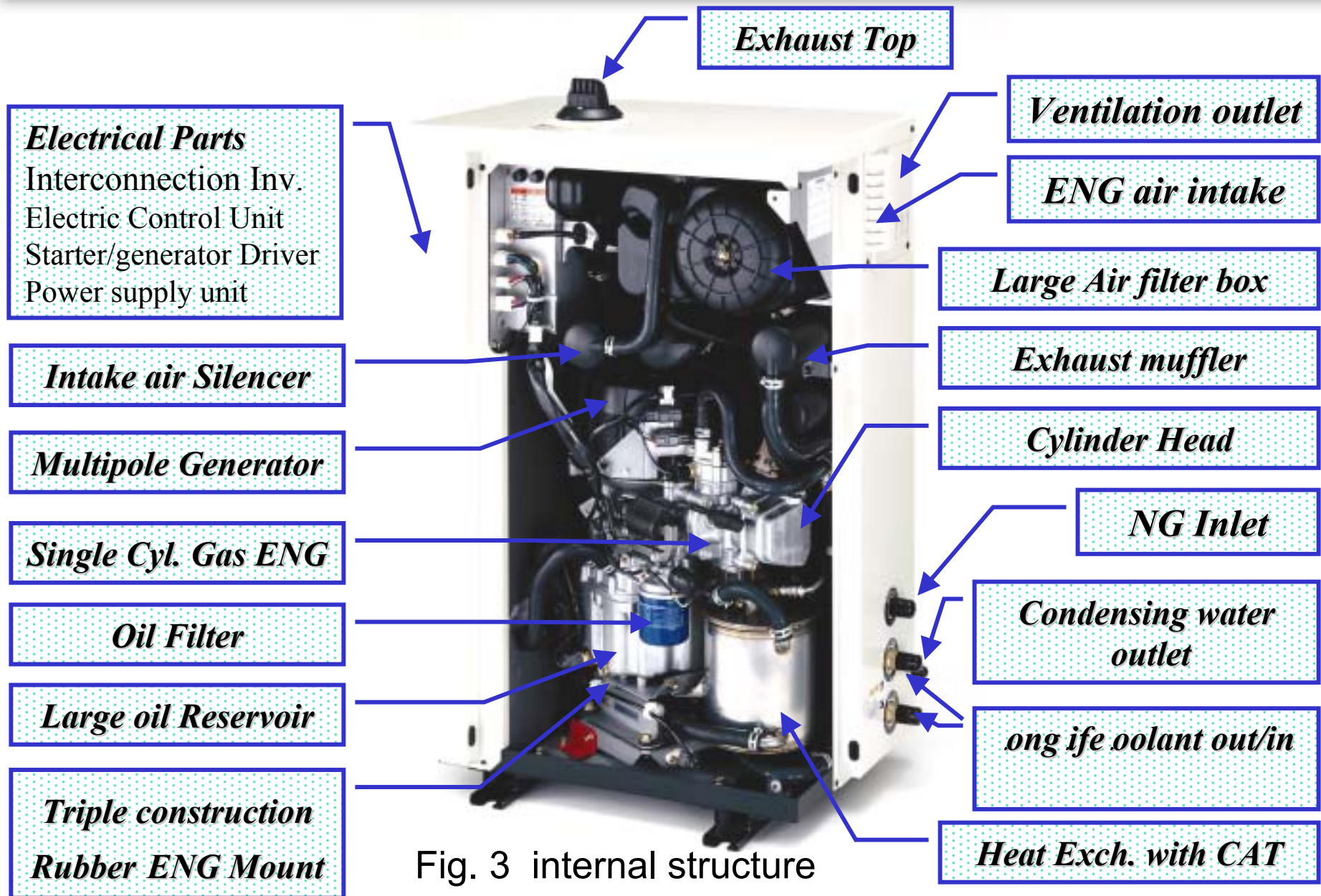
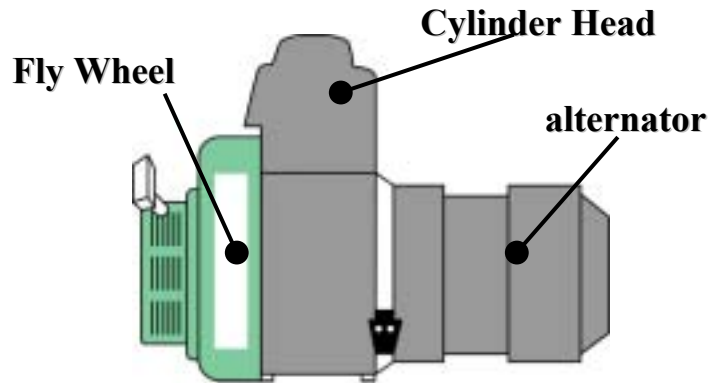


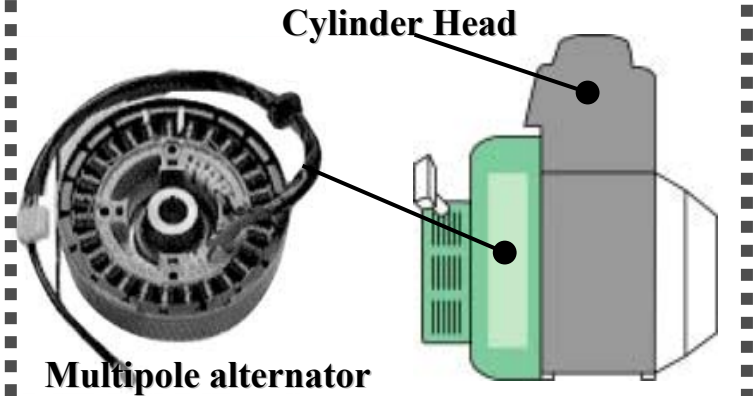
Fig. 3 internal structure

Honda MCHP1.0 Comparison of layout

Conventional Generator

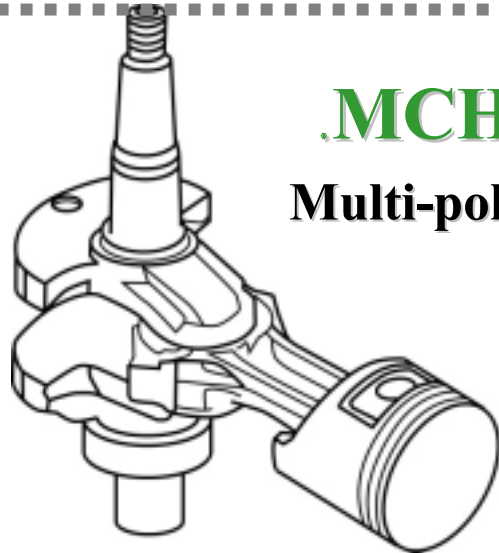


New multi-pole Gen.

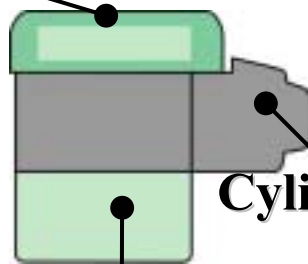


MCHP unit Generator.

Multi-pole alternator



Vertical crankshaft layout engine



Cylinder Head

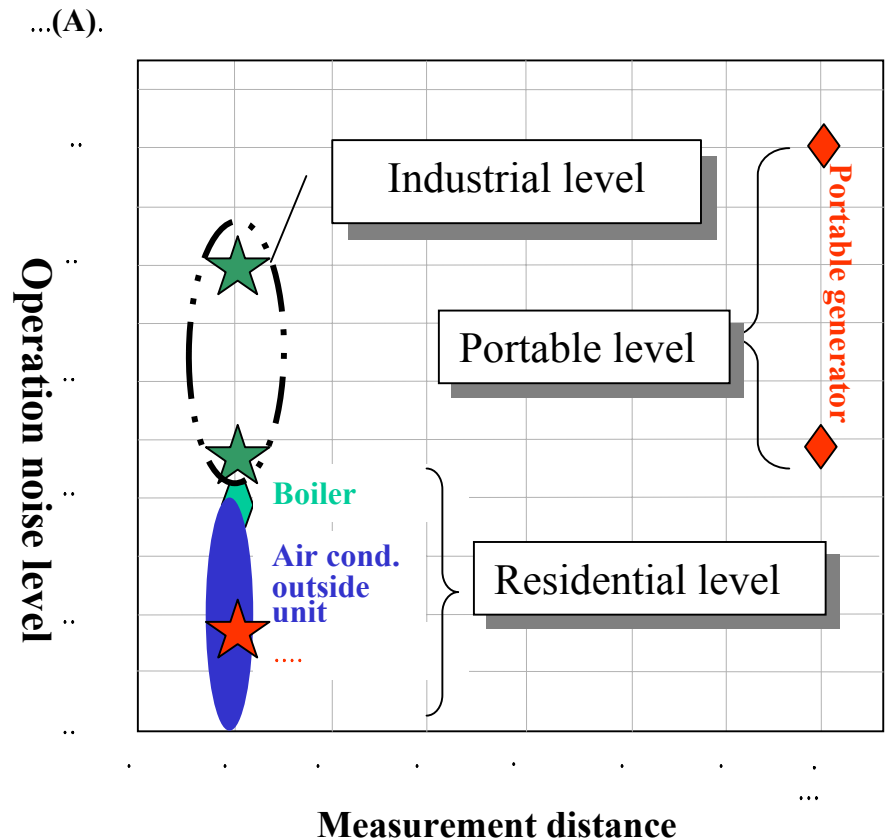
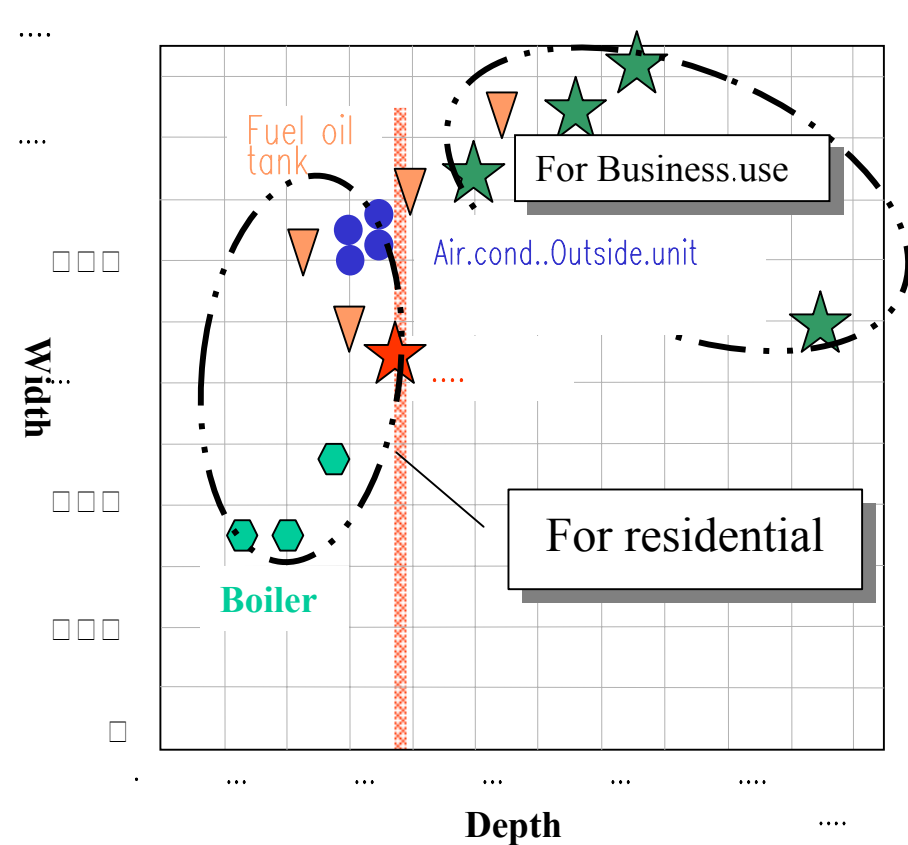
Big Engine oil tank



Fig. 7 comparison of layout

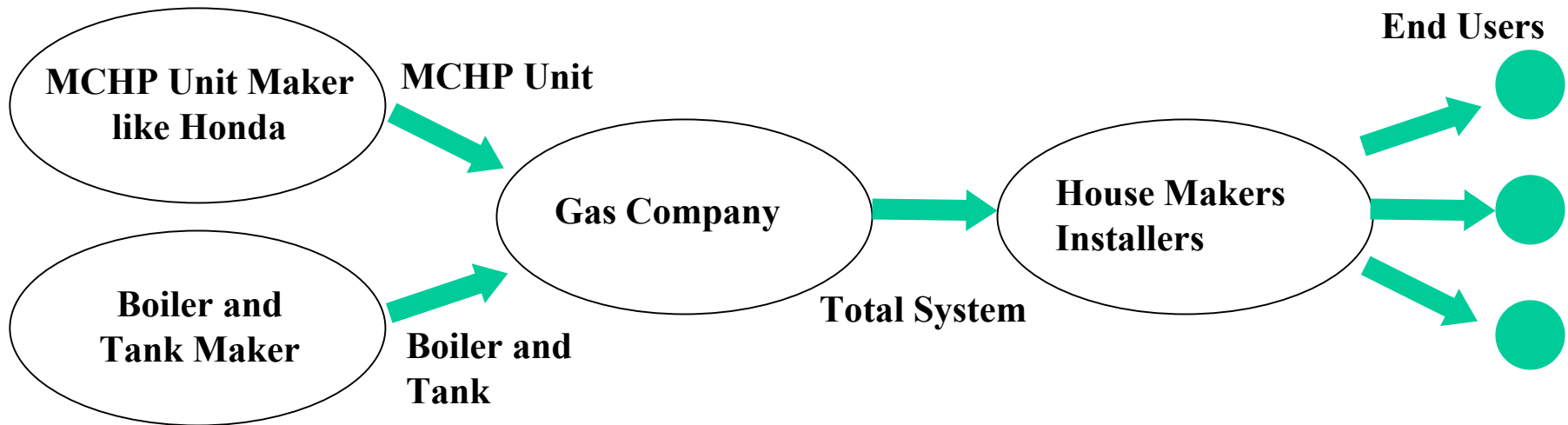
Honda MCHP1.0 Achievement Technique

- Installation in a typical house (compact package)
- Reduction of operation noise

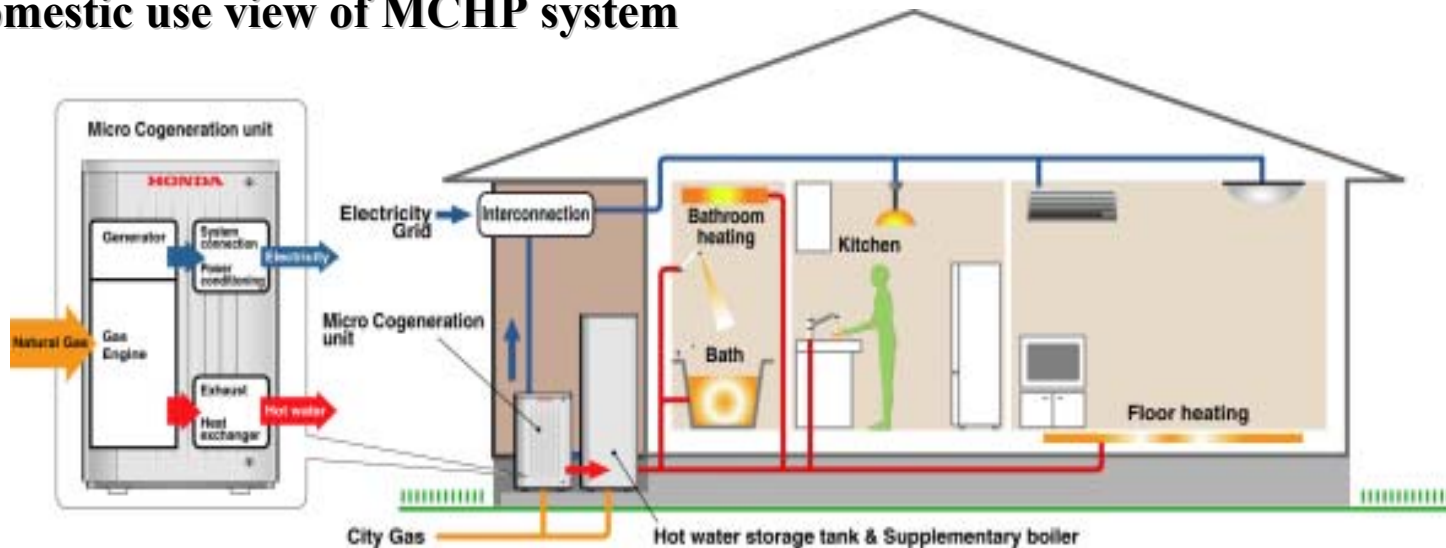


Current Business Model in Japan

In Japan Gas Company has Distribution Channel and Service Division



General domestic use view of MCHP system



Current Market Situation

- Beta Testing in Japan
 - 20 sites test completed
 - 80 sites test ongoing – complete fall 2003
- Production/ Sales Started March 2003
 - Aproximate Retail cost *\$6400
 - * Final price set by Gas Company depending on each installation
- 1000 unit 1st year sales goal
(initial sales ahead of plan)
- Conducting feasibility study for USA market

The End

Thank You